REMARKS

Applicants have carefully considered the Office Action dated December 21, 2004. The claim amendments above together with the remarks that follow are presented in a bona fide effort to respond thereto and address all issues raised in that Action. Although still pending, claims 3-27 are withdrawn from consideration in view of the Examiner's restriction requirement and Applicants' election of the subject matter of claims 1 and 2. Rejected claims 1 and 2 have been rewritten as new claims 28 and 29 above, in order to distinguish that elected/claimed subject matter over applied art. Prompt favorable reconsideration is requested.

Claim 1 was rejected under 35 U.S.C. §102(e) as anticipated by US patent no. 5,898,414 to Awamoto et al. (hereinafter Awamoto). Claim 2 was then rejected under 35 U.S.C. §103 as unpatentable, over a proposed combination of the Awamoto patent with US patent no. 5,365,284 to Matsumoto et al. (hereinafter Matsumoto). As noted, rejected claims 1 and 2 have been cancelled and replaced with claims 28 and 29 drafted so as to distinguish over the applied art. It is respectfully submitted claims 28 and 29 are patentable over Awamoto alone or in combination with Matsumoto. A more detailed discussion of patentability follows.

As disclosed herein, the X and Y electrodes of lines of the display apparatus are disposed in XY/YX fashion (see e.g. Figs. 1 and 7(b)). For interlaced scanning, it is desirable to scan lines in different adjacent line pairs in successive fields of a frame, e.g. 1-2, 3-4, 5-6 in a first field and 2-3, 4-5, 6-7 ... in the second field of the frame. The disclosed scanning technique scans X electrodes during one field and scans Y electrodes during the other field. To drive two lines at the same time in any given field, pairs of the X electrodes and pairs of the Y electrodes are tied together (see Fig. 1) and scanned concurrently, that is to say with scanning pulses of the same phase.

In a conventional XY/XY type display panel, as shown in application Fig. 7(a), non-light emission region 300 must be provided of sufficient width so that no error discharge occurs between the X electrode and the Y electrode. By contrast, in a XY/YX type display panel as disclosed in this case, and as shown in application Fig. 7(b), the electrodes neighboring the non-light emission region 300 are both X electrodes or both Y electrodes. Hence, the display pulses of the two electrodes neighboring the non-light emission region 300 are in the same phase and an error discharge never occurs. Therefore, the non-display region can be narrow, whereas the display region can be relatively wide and the device can have an increase in the brightness of light emission. Attention is directed to page 21, lines 8-17, of Applicants' specification. With the disclosed structure, the plasma display apparatus executes an interlaced scanning and is able to increase the emission brightness of a panel by supplying display pulses onto the X electrodes and the Y electrodes that are different in phase from each other in the display period.

Application Fig. 8 shows an example of the waveforms applied to the X and Y electrodes in such a scanning technique. As shown, the first field of the frame uses the Y electrodes for scanning, and the scanning circuits 102 apply scanning pulses 401 to pairs of Y electrodes Y_1-Y_2, Y_3-Y_3, Y_5-Y_6, ... In this field, the reset pulse 400, the bias pulse 404 and the sustain pulses 402 are applied in common to all of the X electrodes. After scanning and attendant addressing based on the video data, in the first field, the sustain pulses 403 are applied in common to all of the Y electrodes (at a phase that is different from the phase of the pulses 402). The second field of the frame uses the X electrodes for scanning, and the scanning circuits 103 apply scanning pulses 401 to pairs of X electrodes X_2-X_3, X_4-X_5, X_6-X_7, ... In this field, the reset pulse 400, the bias pulse 404 and the sustain pulses 402 are applied in common to all of the Y electrodes. After scanning and attendant addressing based on the video data, in the second field, the sustain pulses

403 are applied in common to all of the X electrodes (at a phase that is different from the phase of the pulses 402). Attention is directed to page 22, lines 3-30, in Applicants' specification.

New claims 28 and 29 specify aspects of this type of display structure and attendant operation that are not disclosed in or obvious from the applied Awamoto and Matsumoto patents.

The Awamoto patent discloses a plasma display apparatus in which interlaced scanning is executed in a lower weight subfield, and non-interlaced scanning is executed in other weight subfield. In the specific example shown in Fig. 11 of Awamoto, interlaced scanning is executed in a the lowest weight subfield(s). However, conventional non-interlaced scanning apparently is executed in at least one other (higher weight) subfield. When interlacing, in the lowest weight subfield, the first display line and the second display line, the third display line and the fourth display line, ..., are simultaneously scanned respectively by supplying the scanning pulses of the same phase to pairs of scanning (Y) lines in the first field. Similarly, the second display line and the third display line, the fourth display line and the fifth display line, ..., are simultaneously scanned respectively by supplying the scanning pulses of the same phase to different scanning (Y) pairs of lines in the second field. However, Awamoto et al. merely discloses a subframe technology of high resolution and high gradation in a plasma display apparatus having a conventional X, Y, X, Y, ...structure similar to that shown in Figs. 5 and 6 of the present application.

In contrast, claims 28 and 29 both specify a different arrangement of the scanning and sustaining electrodes. In claim 28, each display line comprises X and Y electrodes, but the electrodes are "disposed in parallel and in XY/YX order." In claim 29, the "electrodes are disposed in order XY/YX/XY/YX...in parallel with each other." As a result, the electrodes "form each one (1) display line with one (1) pair of XY or YX electrodes," that is to say, each

line has either an XY pair or a YX pair. The XY/XY order of electrodes disclosed in Awamoto does not meet either of these claim requirements.

The claims (28 and 29) also specify applying common phase scanning pulses to a number of Y electrodes in one field and applying common phase scanning pulses to a number of Y electrodes in another field. Display pulses, however, are different in phase from each other. As noted above, the exemplary plasma display apparatus has electrodes Y_1 and Y_2, Y_3 and Y_4,... mutually connected respectively, and it has electrodes X_2 and X_3, X_4 and X_5,... mutually connected respectively. Then, in the first field, the Y electrodes are driven as the scanning electrodes by being provided with the scanning pulses; and in the second field, the X electrodes are driven as the scanning electrodes by being provided with the scanning pulses. Awamoto does not teach scanning by applying pulses to Y electrodes in one field and scanning by applying pulses to X electrodes in the other field, in the manner recited in claims 28 and 29. In that patent, the Y electrodes are scanned by drive 2 and driven by common signals via driver 3, however, the X electrodes are driven only by common driver 4 (see Figs. 7, 9 and 13).

For at least these reasons, the Awamoto patent does not meet all of the requirements of either of claims 28 and 29 and does not anticipate either of those claims. It is respectfully submitted that Matsumoto does not make up for the deficiencies of the teachings of Awamoto.

The Matsumoto patent discloses a liquid crystal display device. For example, Matsumoto fails to suggest an XY/YX arrangement of electrodes applicable to use in the Awamoto device. Also, Matsumoto teaches time compression processing, interpolating and the like with regard to an interlaced original video signal, for a non-interlace conversion. Accordingly, Matsumoto also does not suggest applying scanning pulses to Y electrodes in one field, applying scanning pulses to X electrodes in another field and applying display pulses to the X and Y electrodes that differ

in phase, as in each of claims 28 and 29. Hence, the Matsumoto patent would not lead one of skill in the art to modify the Awamoto display apparatus to satisfy either claim 28 or claim 29.

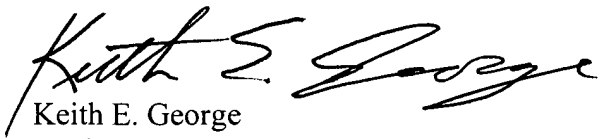
It is noted that XY/YX electrode order has been proposed by others (see discussion of alleged "prior art" in column 2, lines 11-32, of US patent no. 6,433,762 to Huang). However, it is believed that no such proposal would have lead a person of skill in the art to scan the Y electrodes during one field, scan the X electrodes during the other field and apply display pulses of different phases to the X and Y electrodes, either in the manner of claim 28 or in the manner of claim 29. Hence, claims 28 and 29 should be patentable over the art.

It is believed that this response addresses all issues raised in the December 21, 2004 Office Action. However, if any further issue should arise that may be addressed in an interview or an Examiner's amendment, it is requested that the Examiner telephone Applicants' representative at the number shown below.

To the extent necessary, if any, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Keith E. George
Registration No. 34,111

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 KEG:apr
Facsimile: 202.756.8087
Date: March 21, 2005

Please recognize our Customer No. 20277 as our correspondence address.